

App. No. 10/719,406  
Reply to Office action of 9/7/05  
Page 3

**Amendments To The Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 is amended.

**Listing of Claims:**

1. (Currently Amended) A hydroplaning detection apparatus for a vehicle comprising:

wheel speed sensors for detecting vibrations from a road surface through tires, the wheel speed sensors being provided at front and rear wheel sides, respectively;

an input section through which the wheel speed sensors input their detection values; and

a processing unit for processing the detection values to determine hydroplaning, wherein the processing unit operates comprises:

a digital filter to feature extract a change pattern of the detection values for the respective front and rear wheel sides by excluding inherent tire influences on the detection values due to lack of tire uniformity, while maintaining speed variations due to road bump, wherein a waveform representing the inherent tire influences due to a lack of tire uniformity has a long period relative to a shorter waveform representing speed variations due to road bump;

means for executing to execute pattern matching between the front and rear wheel sides on the basis of the feature extracted change patterns of the detection values;

means for obtaining to obtain a time difference from a coincidence of the change patterns;

means for calculating to calculate a first vehicle speed based on the time difference and a reference distance that is previously stored in the hydroplaning detection apparatus;

App. No. 10/719,406  
Reply to Office action of 9/7/05  
Page 4

means for calculating to calculate a second vehicle speed based on an average value of wheel speeds detected by the wheel speed sensor that is provided at the rear wheel side; and

means for determining to determine that hydroplaning has occurred if a deviation between the first vehicle speed and the second vehicle speed is greater than a certain value.

2. (Original) A hydroplaning detection apparatus according to claim 1, wherein the processing unit determines that hydroplaning has occurred if the deviation exceeds the certain value for a certain period of time.
3. (Original) A hydroplaning detection apparatus according to claim 1, wherein the reference distance is a wheel base of the vehicle
4. (Original) A hydroplaning detection apparatus according to claim 2, wherein the reference distance is a wheel base of the vehicle.